CALOHEE - Civil Engineering

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DESIGN AND DELIVERY Of DEGREE PROGRAMMES IN CIVIL ENGINEERING

- Comparing Assessment of Learning Outcomes in Higher Education in Europe
- First and Second cycles (Levels 6 and 7 of EQF)

Tables of general descriptors for first and second cycles

- Main Reference
- EUR-ACE programme (learning) outcomes
- Comparison with the most influential LOs frameworks in the engineering field
- Tuning-AHELO, EUCEET, International Engineering Alliance - Washington Accord, ABET, Conceiving, Designing, Implementing, Operating (CDIO) Initiative, National Society of Professional Engineers, American Society of Civil Engineering (ASCE)

9 Dimensions

- Knowledge and understanding;
- Analysis and Problem Solving;
- Design;
- Investigations;
- Engineering Practice;
- Decision Making;
- Team-working;
- Communication;
- Lifelong Learning

Example – Dimension Design (Master LEVEL 7)

- EQF descriptor Knowledge
- Comprehensive knowledge and understanding of design methods in the field of study, including new and original methods, and of their limitations.
- Critical awareness of the need for sustainable development in the field of study.

• EQF descriptor Skills
• Ability to conceive and design complex engineering products (devices, artefacts, etc.), processes and systems in the field of study that may be new or unfamiliar, involve considerations from outside the field of study, incompletely defined and /or competing specifications and non-technical – societal, health and safety, environmental, economic and industrial – constraints.
• Ability to design using knowledge and understanding at the forefront of the engineering specialisation.

• EQF descriptor Wider Competence
• Ability to identify the most appropriate and relevant design method in the field of study area from established or new and innovative methods.
• Ability to conceive and design safe and sustainable engineering products, processes and systems in the field of study.

Example – 2nd Cycle
• Dimension - Analysis and problem solving
• Knowledge – Critical awareness of the need of solutions of civil engineering problems safe, sustainable and of low impact on society and environment.
• Assessment methods proposed - Multiple Choice Questions – Discuss, Essay – Discuss, Problem Solving - Diagnosis
• Example Teaching - Design-based classes, Work-based practice
• Example Learning - Design-based classes, Work-based practice

Example – 1st Cycle
• Dimension – Team-working
• Wider competencies – Ability to take responsibility for managing professional development of individuals and groups.
• Assessment methods proposed - Essay - Problem, Short Answer Questions - Formulate valid conclusions, Problem Solving - Generation
• Example Teaching - Individual supervision, Role play
• Example Learning - Work-based practice, Role play

Action PLAN
• Complete examples of Teaching and Learning L for each LO
• Discuss with stakeholders: professional engineering organizations, employers, engineers, quality and accreditation agencies
• Finalize framework with inclusion of examples